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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Srinka Ghosh

Serial No.: 10/773,890

Filing Date: February 6, 2004

Examiner: Jerry Lin

Group Art Unit: 1631

Title: FEATURE EXTRACTION OF PARTIAL MICROARRAY IMAGES

COMMISSIONER FOR PATENTS

P.O. Box 1450
Alexandria VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- ☐ Response/Amendment ☐ Petition to extend time to respond
☐ New fee as calculated below ☐ Supplemental Declaration
☐ No additional fee (Address envelope to "Mail Stop Amendments")
☒ Other: Petition to Director (Fee \$ _____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS		MINUS		= 0	X 50	\$ 0
INDEP. CLAIMS		MINUS		= 0	X 200	\$ 0
<input type="checkbox"/> FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ 360	\$ 0
EXTENSION FEE	1 ST MONTH 120.00 <input type="checkbox"/>	2 ND MONTH 450.00 <input type="checkbox"/>	3 RD MONTH 1020.00 <input type="checkbox"/>	4 TH MONTH 1590.00 <input type="checkbox"/>		\$ 0
OTHER FEES						\$ 0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

Charge \$0 to Deposit Account 50-1078. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 50-1078 pursuant to 37 CFR 1.2 5. Additionally please charge any fees to Deposit Account 50-1078 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this transmittal letter is enclosed.

I hereby certify that this correspondence is being Deposited with the United States Postal Service as First class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

Date of Deposit: September 20, 2007

Typed Name: Joanne Bourguignon

Signature: *Joanne Bourguignon*

Respectfully submitted,

Srinka Ghosh

By

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Reg. No. 39,906

Date: September 20, 2007

Telephone No. 206.621.1933



PATENT

I hereby certify that on the date specified below, this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to MAIL STOP AMENDMENT Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

9-20-2007 Joanne Bourguignon
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Srinka Ghosh
Application No. : 10/773,890
Filed : February 6, 2004
For : Feature extraction of partial microarray images

Examiner : Jerry Lin
Art Unit : 1631
Docket No. : 10030771-1
Date : September 20, 2007

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO THE DIRECTOR UNDER 37 C.F.R. 1.181(a)(1)

Sir:

In response to the Office Action date May 22, 2007, Applicant's representative petitions the Director to review the restriction under 37 CFR § 1.144 maintained by the Examiner. A response to the Office Action was timely filed on August 22, 2007.

STATEMENT OF FACTS

The restriction requirement was initially made in an Office Communication dated August 30, 2006. The Examiner required restriction to one of: Group I, claims 1-14 and 25; Group II, claim 15; and Group III, claims 16-24 and 26. Applicant's representative traversed the restriction requirement in a Response to Restriction Requirement, filed on October 2, 2006. The Examiner maintained the restriction requirement in an Office Action dated May 22, 2007.

Claims 1, 15, and 16, representative of Groups I, II, and III are provided below:

1. A method for processing microarray data, the method comprising:
 - rendering the microarray data for visual display;
 - displaying the microarray data rendered for visual display;
 - receiving as input a boundary of a region of feature extractability within the microarray;
 - constructing a regularly shaped region of feature extractability from the received boundary of the region of feature extractability within the microarray;
 - and
 - extracting feature signals from the regularly shaped region of feature extractability.
15. Feature-signal data extracted from the regularly shaped region of feature extractability, determined by the method of claim 1, stored in a computer readable medium.
16. A microarray data processing system comprising:
 - a processor;
 - stored, computer readable microarray data;
 - a display device and a user input device; and
 - a program that
 - renders the microarray data for visual display;
 - displays the microarray data rendered for visual display;
 - receives a boundary of a region of feature extractability within the microarray data; and
 - constructs a regularly shaped region of feature extractability from the received boundary of the region of feature extractability within the microarray data.

Please consider the elements of claims 1 and 16, juxtaposed in the following table:

Claim 1	Claim 16
A method for processing microarray data, the method comprising:	A microarray data processing system comprising:
	a processor;
	stored, computer readable microarray data;
	a display device and a user input device; and
	a program that
rendering the microarray data for visual display;	renders the microarray data for visual display;
displaying the microarray data rendered for visual display;	displays the microarray data rendered for visual display;
receiving as input a boundary of a region of feature extractability within the microarray;	receives a boundary of a region of feature extractability within the microarray data; and
constructing a regularly shaped region of feature extractability from the received boundary of the region of feature extractability within the microarray; and	constructs a regularly shaped region of feature extractability from the received boundary of the region of feature extractability within the microarray data.
extracting feature signals from the regularly shaped region of feature extractability.	

Claim 1 is a method claim, and claim 16 is a system claim, but inspection of the above table reveals that claims 1 and 16 share 4 nearly identical elements. The preceding elements of claim 16 include: (1) a processor, (2) stored, computer readable microarray data; (3) a display device and a user input device; and (4) a program.

Because claim 1 is directed to a processing method, a processor is implied, at least for practical implementations. Claim 1 explicitly mentions: microarray data; rendering the microarray data for display and displaying the microarray data, implying a display device; and explicitly mentions receiving input, implying a user input device. Claim 1, as a processing method, implies that the method is computational, in nature, and likely to be feasibly implemented as a computer program. While it might be argued that claim 1 does not specifically state that it is directed to a "computational method," the disclosed embodiments are implemented as computer programs for execution within a computer system or scanner, and it would be obvious to anyone familiar with such methods that they can be cost-efficiently and timely carried out only as a computational process implemented as a computer program or routine, or implemented directly in hardware logic. Furthermore, the art cited by the Examiner in the Office Action is clearly a computational method, and even if non-computer-based-method references were considered necessary to include in a search, no reasonable search would avoid computational-method references. In applicant's representative's opinion, the additional, initial elements in claim 16 do not justify restriction of claim 16 from claim 1, particularly considering that methods and system claims directed to the same underlying invention are routinely prosecuted together in the computing and electrical arts.

The first four elements of claim 1 are nearly identical to the final four elements of claim 16. These elements are directed to identifying a regularly shaped region of feature extractability. The final element of claim 1, "extracting feature signals from the regularly shaped region of feature extractability," includes the step of actually extracting feature signals from the regularly shaped region of feature extractability. Although this step is not included in claim 16, extracting feature signals is a rather unsurprising additional step, because the regularly shaped region mentioned in the final step of claim 16 and the penultimate step of claim 1 is a region of "feature extractability," implying that something related to features is to be extracted. Furthermore, nearly all of the terms and phrases of this final step of claim 1 appear in various elements of claim 16.

Claim 15 is a dependent claim, depending directly from claim 1. Thus, claim 15 includes all limitations of claim 1, and is therefore quite closely related to claim

1. Claim 15 is directed to results of carrying out the method of claim 1 stored in a computer-readable medium. Any search for claim 15 would necessarily entirely overlap a search for claim 1.

In maintaining the restriction, the Examiner states: "Since the Examiner is charged with searching the prior art for each limitation in the claims, the presence of additional steps would require additional searches, which would be an undue search burden." Applicant's representative suggests that this cannot be sufficient justification for a restriction requirement. By this justification, it would seem that any dependent method claim that includes an additional step would necessarily be restricted from, and need to be prosecuted separately from, the independent claim that it depends from. But, dependent claims are routinely prosecuted together with the independent claims from which they depend. Indeed, claims 22-25 of the current application recite additional steps, with respect to claim 16, and yet have not been restricted from claim 16. This type of justification, along with the well-known fact that issued patent applications routinely include numerous claim sets, each claim set comprising an independent claim and some number of dependent claims that directly or indirectly depend from the independent claim and that include additional elements, would seem to imply that restriction requirements are entirely a matter of discretion by examiners, and that restriction requirements are therefore made arbitrarily. However, administrative law agencies are obligated to render non-arbitrary decisions by other than arbitrary methods.

Moreover, according to MPEP § 803:

If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.

As further stated the MPEP § 803:

There are two criteria for a proper requirement for restriction between patentably distinct inventions:

- (A) The inventions must be independent; and
- (B) There must be a serious burden on the examiner if restriction is required.

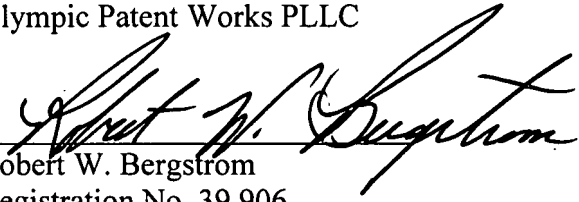
It is hard to imagine that separately searching for a method claim with 5 steps and a related system claim that almost identically recites 4 of the 5 steps, would not represent a

greater burden than to search for both claims together, in a single search. Similarly, it is very hard to imagine that separately searching for a method claim with 5 steps and for a dependent claim, directly depending from the method claim and directed to results produced by the method stored in a computer-readable memory, would not represent a greater burden than to search for both claims together. Applicant's representative cannot understand how searching for a small number of closely related claims can possibly constitute a *serious* burden, by any definition of the term "serious." All of the claims overlap to a greater extent than they differ, and claim 1 completely overlaps claim 15.

Applicant's representative well understands that, in certain fields, particularly biotechnology-related fields, restriction requirements are needed to partition claim sets that often exceed hundreds of claims into a number of manageable and reasonably sized claim sets included in the original application and a number of divisionals. However, in the current application, only 26 claims were filed, including only 3 independent claims. Applicant's representative cannot understand the need to restrict such a modest, focused claim set in which all claims are clearly directed to a common, underlying disclosed invention and therefore substantially overlap.

Although Applicant's representative does believe a fee is due, at anytime during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account No. 50-2976 pursuant to 37 CFR 1.25. Additionally, please charge any fees to Deposit Account No. 50-2976 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. This notice is being submitted in duplicate.

Respectfully submitted,
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Enclosures:

Postcards (2)
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